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The Trans-Canada Highway

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Canada's development is in many ways a record of the solving of problems presented by the country's vastness. Distance, however, has not been the only obstacle to overcome; there have also been such formidable barriers to transportation and communication as the Rocky Mountains and the Canadian Shield. Also, the lines of geographical similarity and economic interest run north and south across the boundary between Canada and the United States, not east and west across Canada. The nation therefore could attain its full development only with the help of an extensive and costly system of communication.

From the beginning, Canada's growth has depended on the growth of water, rail, road and air transportation. A web of communications spread across the country, opening the way to new resources and stimulating economic development. Only against this background can such an achievement as the construction of the Trans-Canada Highway be fully appreciated.

Provincial responsibility

The building of roads in Canada is primarily a provincial responsibility. Since 1919, however, the federal government has, for various reasons, participated in the construction of highways. It is wholly responsible for building and maintaining the roads that serve the national parks

and the Yukon and Northwest Territories, and for the upkeep of the Alaska Highway. In the construction of the Trans-Canada Highway, however, the federal government, in co-operation with the ten provincial governments, has made its largest contribution to road-building. Since the passage of the Trans-Canada Highway Act in 1949, provincial and federal authorities have pushed steadily toward the realization of a 7,675-km (4,796-mile) paved, all-weather route from St. John's, Newfoundland, to Victoria, British Columbia.

While the provinces undertook the actual building of the Highway (except those stretches that cross the national parks), the procedures governing design and construction were subject to review and approval by federal authorities and federal engineers inspected the work as it proceeded.

Costs

Construction costs were shared basically by the provincial and federal governments. In 1956, however, the federal government agreed to increase its share to 90 per cent on 10 per cent of the mileage in each province. In 1963, the 90 per cent federal contribution was extended to all remaining construction in the Atlantic region. The total commitment for construction of the Highway, a sum indicating costs incurred by the provinces and including Canada's

share of nearly \$825 million between December 10, 1949, and December 31, 1970, came to some \$1.4 billion.

The Department of Public Works, which was responsible for the administration of the Act notes in its final report that final payments were made to the provinces by May 31, 1971.

Provincial distances

The following table shows actual distances of the Highway in each of the provinces and national parks:

Province	km	miles
Newfoundland	864	540
Prince Edward Island	114	71
Nova Scotia	445	278
New Brunswick	602	376
Quebec	621	388
Ontario	2 325	1 453
Manitoba	496	310
Saskatchewan	650	406
Alberta	451	282
British Columbia	883	552
National parks	224	140
	7 675	4 796

Besides St. John's and Victoria, the cities along the route include: Charlottetown (P.E.I.); Moncton and Fredericton (N.B.); Montreal (Quebec); Ottawa, Peterborough, Orillia and Kenora (Ontario); Winnipeg, Portage la Prairie and Brandon (Manitoba); Regina, Moose Jaw and Swift Current (Saskatchewan); Medicine Hat and Calgary (Alberta); and Kamloops, New Westminster,

Vancouver and Nanaimo (B.C.). In Nova Scotia, the route passes through North Sydney and Truro and over the 1.2-km (4,000-foot) Canso Causeway, the cost of which, since it was a separate federal project, was not included in the appropriations for the Trans-Canada Highway.

The specifications for the Highway are set out in the Trans-Canada Highway Act. Over the entire route, grades and curves have been reduced as much as possible. Curves, for example, have been kept, wherever possible, to three degrees, but do not exceed six degrees, except in isolated cases where the terrain does not permit this with reasonable economy. Grades do not exceed 6 per cent except in very mountainous country, where gradients of 7 and 8 per cent are acceptable for short distances. Wherever possible, minimum horizontal and vertical sight-distance has been kept at 180 m (600 feet). This means that a driver travelling on the Trans-Canada Highway should see an object 15 cm (six inches) high on the pavement in front of him at a distance of 180 m (600 feet).

Engineering Problems

The engineering tasks have been monumental. After work began in 1950, motorists witnessed the spectacle of the greatest array of heavy power-shovels, bulldozers, graders,

dump-trucks and other earth-moving machines ever assembled for a single road-building project in Canada. Muskeg presented special construction problems in Northern Ontario, Newfoundland and elsewhere. In some places, the muskeg was as much as 15 m (50 feet) deep. Then there was the Prairie "gumbo", a treacherous, heavy clay soil covering 25 to 30 per cent of the route across the western plains. In Quebec, the Highway was pushed through the heart of Montreal by means of such complex projects as a 5.8-km (3.6-mile) bridge-tunnel crossing the St. Lawrence River. In British Columbia, the road-crews had literally to move mountains. Work was extremely hazardous in the Fraser and Kicking Horse Canyons, where hardrock miners blasted away mountain walls 150 m to 300 m (500 feet to 1,000 feet) above turbulent rivers. Landslides were frequent. Since in most places the railway ran below the new Highway, great care had to be taken to protect the tracks, and tons of rubble had to be carried away truckload by truckload. In a single 14.4 -km (nine-mile) stretch between Field and Golden, 1.8 million t (2 million tons) of rock and an equal amount of dirt had to be moved, a job requiring 4,500 t (5,000 tons) of explosives.

To combat snowslides through Rogers Pass in Glacier National Park, the Department of Public Works devised an elaborate system of avalanche defences. A 1.6-km (one-mile) section consists almost exclusively of snow-sheds, the most effective type of defence.

On September 3, 1962, a ceremony held in Rogers Pass in Glacier National Park marked the opening of the last major physical gap in the route, making it possible to travel on the Trans-Canada Highway from coast to coast.

The Trans-Canada Highway ranks with the great transportation achievements of the past. The trans-continental roadway is making a large contribution to Canada's development, besides offering Canadians and visitors one of the great scenic drives in the world.



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